

What is claimed is

1. A method of registering a home address of a mobile node with a home agent in a network, said method comprising the steps of:

conveying a request by the mobile node to the home agent requesting the registration  
5 of the home address;

authenticating the mobile node; and

storing the home address of the mobile node in the home agent.

2. The method of claim 1, further comprising the step of obtaining the home address by  
10 the mobile node.

3. The method of claim 1, wherein the request includes a network access identity of the mobile node and the home address to be registered.

4. The method of claim 3, wherein the mobile node is authenticated using security  
15 information based on the network access identity.

5. The method of claim 3, wherein the mobile node and the home agent share a security association identified by the network access identity, and the mobile node is authenticated  
20 based on the security association.

6. The method of claim 1, wherein the request also includes a mobile node authenticator for use in said authenticating step.

7. The method of claim 5, wherein the request also includes a mobile node authenticator for use in said authenticating step, and the mobile node authenticator is computed based on  
25 said security association.

8. The method of claim 1, wherein the request also includes a care-of-address of the  
30 mobile node indicative of a current point of attachment to the network by the mobile node.

9. The method of claim 1, further comprising the step of

sending authentication and key material to the mobile node so as to allow the mobile node to provide the home agent with a mobile node authentication based on the authentication and key material when said authenticating step requires a challenge-response procedure.

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10. The method of claim 1, wherein the mobile node is allowed to proceed with binding update messages based on the stored home address in the home agent when needed.

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11. The method of claim 10, further comprising the step of associating a lifetime to the registered home address so as to limit the duration in which the mobile node is allowed to proceed with the binding update messages.

12. The method of claim 11, wherein the lifetime can be refreshed when the mobile node proceeds with a binding update message.

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13. The method of claim 11, wherein the lifetime can be refreshed with a further request by the mobile node to the home agent.

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14. The method of claim 1, further comprising the step of authenticating the request using a hash function.

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15. The method of claim 1, further comprising the step of storing a value indicative of the home address and a security parameter index in a security engine in the home agent so as to allow the home agent to authenticate a binding update message based on said stored value and the security parameter index.

16. The method of claim 1, further comprising the step of the mobile node providing proof that the mobile node owns and is authorized to use the home address.

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17. The method of claim 8, further comprising the step of the mobile node providing proof that the mobile node owns and is authorized to use the care-of-address.

18. The method of claim 1, wherein the home agent is discovered by the mobile node in a discovery process and the registration of the home address is conveyed to the discovered home agent.

5 19. A network system comprising  
at least a mobile node having a home address associated thereto, and  
a home agent, wherein the mobile node is adapted to send a request to the home agent requesting the registration of the home address, and the home agent is adapted to authenticate the mobile node and to store the home address of the mobile node in the home agent.

10 20. The network system of claim 19, wherein the request includes a network access identity of the mobile node and the home address to be registered.

15 21. The network system of claim 20, wherein the home agent authenticates the mobile node using security information based on the network access identity.

20 22. The network system of claim 19, wherein the mobile node and the home agent share a security association identifiable by the network access identity, and the home agent authenticates the mobile node based on the security association.

23. The network system of claim 19, wherein the request includes a care-of-address of the mobile node indicative of a current point of attachment to the network by the mobile node.

25 24. A home agent in a network, the network comprising at least one mobile node having a home address to be registered with the home agent by sending a request to the home agent, said home agent comprising:

means, response to said request, for authenticating the mobile node; and

means, response to said authentication, for storing the home address.

30 25. The home agent of claim 24, wherein the request includes a network access identity of the mobile node and the home address to be registered.

26. The home agent of claim 25, wherein said authenticating means authenticates the mobile node based on the network access identity.

27. A mobile device in a network, the network comprising at least a home agent, the mobile device having a home address and a network access identity, said mobile device characterized by

    sending a request to the home agent for registering the home address, wherein the request includes the network access identity so as to allow the home agent to authenticate the mobile device based on the network access identity.

28. The mobile device of claim 27, wherein the home agent is discovered by the mobile device in a discovery process.

29. The mobile device of claim 27, wherein the mobile device is adapted to sending proof that the mobile device owns and is authorized to use the home address when registering the home address with the home agent.

30. The mobile device of claim 27, wherein the request further includes a mobile device authenticator so as to allow the home agent to authenticate the mobile device based on the authenticator.